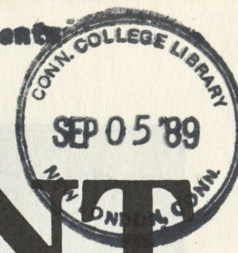


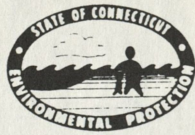
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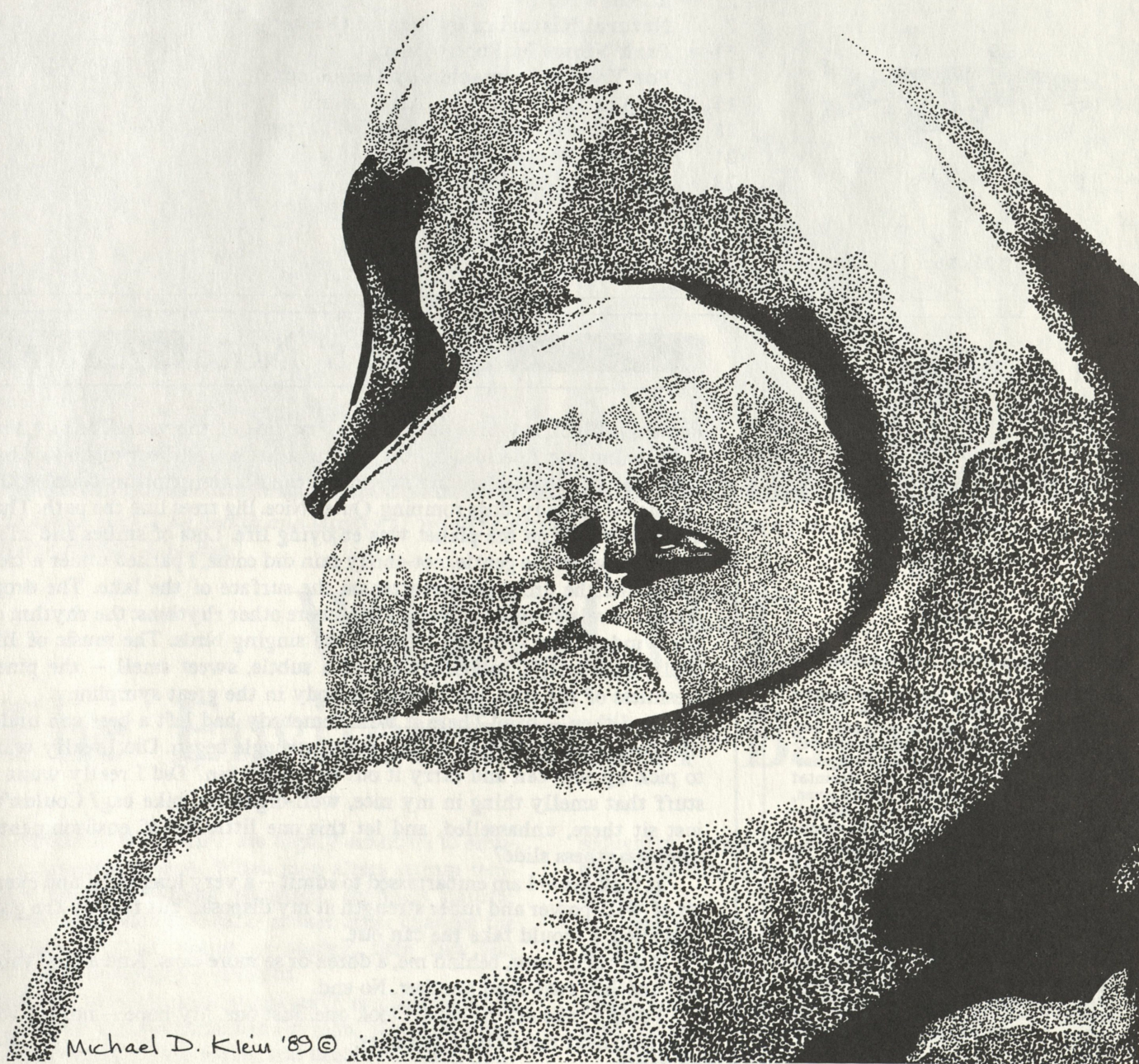
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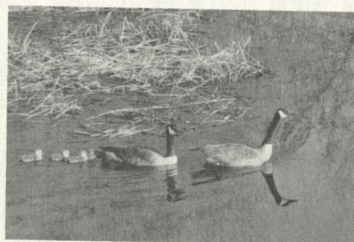
Wildlife: the environmental barometer



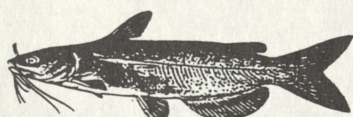
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Page 3.



Page 16.

Cover by Michael D. Klein

Features

- 3 **Wildlife: The Environmental Barometer**
It's simple; when the animals are healthy, the environment is healthy.
- 9 **A Committee on the Rivers** by Wanda A. Rickerby
The DEP begins a new river management strategy.
- 12 **Connecticut's Parks and Forests at a Glance**
A few neat places to check out.
- 16 **Connecticut's Channel Cat** by Jeff Carlson
The cat fish are still jumping.

Departments

- 2 **Editor's Note**
- 7 **Natural Historian** by Richard Gechter
- 11 **Park Views** by Robert Paier
- 14 **For Your Information** by Leslie Lewis
- 15 **Map of the Month** by Alan Levere
- 18 **Trailside Botanizer** by Gale W. Carter
- 21 **Bulletin Board**
- 23 **Night Sky** by Francine Jackson
- 23 **Endnote**

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Editor's Note

Recently, I took my bike out for the first ride of the year. The sky was threatening, but I decided to risk getting a little wet. Near my house is a reservoir with a path around it. Kids on their bikes, strolling couples, the occasional old lady, dogs romping. Quiet. Nice. Big trees line the path. That day everybody on the planet was enjoying life. Lots of smiles and hi's.

And when the gentle, not-chilly rain did come, I parked under a tree. I watched the drops pitter-patter on the surface of the lake. The drops made a lovely musical pattern. There were other rhythms: the rhythm of the wind, of the swaying trees, of the singing birds. The music of life itself. Gradually I became aware of a subtle, sweet smell — the piney freshness of the tree. Yet another melody in the great symphony.

And then — bam! There it was. Somebody had left a beer can under that tree. And with that, a great moral struggle began. Did I really want to pick up that can and carry it out to a trash bin? Did I really want to stuff that smelly thing in my nice, well-organized bike bag? Couldn't I just sit there, unhassled, and let this one little bit of environmental unpleasantness slide?

It took me — I am embarrassed to admit — a very long time, and every bit of will-power and inner strength at my disposal, but finally the good prevailed. I would take the can out.

And then I saw, behind me, a dozen or so more cans. And a few yards off, another two. And another. No end.

I didn't take all the cans. I took one. Just one. My hope — no, my vow — is that next time I'll be stronger.

R.P.



White-tailed buck. The health and vitality of wildlife populations are indicators of the health of the environment as a whole. (Photos: L.L. Rue.)

WILDLIFE

The Environmental Barometer

FISH AND WILDLIFE are highly sensitive to environmental change. When man alters stream temperature or flow, drains wetlands, channels natural water-courses, clears forests, or makes other changes the availability of food, water, or shelter, then fish and wildlife are immediately affected.

Fish and wildlife populations serve as a barometer of the quality of the environment for man, who also must have clean water, fertile fields, and healthy forests. Con-

sequently, proper use of our nation's land and water resources is both in the interest of man and of fish and wildlife.

Nearly every wild fish, bird, or mammal survives within a comparatively narrow environmental range. Environmental factors may be divided broadly into food, water, and cover. And, almost by definition, each species' need for each of these essentials varies.

Some desert animals, like the kangaroo rat, require

minimal water supplies; they have become adapted to obtain moisture directly from plants. At the other extreme, waterfowl and aquatic mammals, like the muskrat and beaver, need an abundance of water — not only for drinking but as part of their cover requirements and to promote the growth of their essential foods. Some species, like the pronghorn antelope, must have open grassland; others, like the deer, thrive in mixtures of brushland and young forest.

CLIMATE, TOPOGRAPHY, AND GEOLOGY are basic influences on the composition of the plant community; and the nature and abundance of the local plants, in turn, influence the kinds of wild animals that the area can support.

Man-made changes in the environment need not be directly destructive of wildlife to alter radically the composition of the wildlife population. Clear-cutting an isolated woodlot and replanting it with corn, for example, will eliminate gray squirrels but will improve conditions for pheasants. Flooding the entire cornfield would drive out pheasants, but create useful habitat for ducks and muskrats. Altering or maintaining the environment to favor the needs of certain wild species is a basic technique of wildlife management.

SOME ENVIRONMENTAL CHANGES, however, may be extremely damaging to all wildlife. Excessive pollution, repeated and uncontrolled forest fires, and

farming and forestry practices that destroy soil fertility and the diversity of the plant community can create wildlife deserts.

When the relationship between wildlife and habitat is recognized, it is possible to understand why some species that never were hunted extensively became extinct while others that have been hunted intensively are among our most abundant species. The white-tailed deer, for example, is many times more abundant today than it was in 1900, and in most places more numerous than in 1600. Few of the birds and mammals listed as rare and endangered by the U.S. Bureau of Sport Fisheries and Wildlife ever were hunted. Most are victims of pollution, landfilling, clearing, and other massive man-made environmental changes that have destroyed one or more essential elements in their habitat.

THE TRANSFORMATION OF AMERICA from wilderness to an urban-dominated landscape has brought great changes in the composition of the native wildlife. Species like the woodland caribou and ivory-billed woodpecker, which require a wilderness habitat, inevitably declined. But their places usually were taken by other species, better-adapted to an environment shaped by man. Such species, however, like the starling, are not always as well liked by man.

When desirable wildlife begins to disappear in spite of legal protection, we may assume that something is wrong with the environment, that something is out of balance. And, when that happens, the effects may extend



Male ring-necked pheasant. Some of the dangers to wildlife include pollution, landfilling, clearing, and other man-made environmental changes.



The basic needs of all creatures, including this porcupine, are basically the same: food, water, and protection from the elements.

far beyond the loss of esthetic and recreational values.

The basic needs of wildlife are essentially the same as those of man. Most species of wildlife are products of a clean, fertile, and productive environment. They must have adequate food, clean water, and protection from the elements if they are to survive. So must man.

Wildlife needs variety in its habitat in order to exist. So, too, does man.

Even the most urban-oriented citizen, who rarely ventures from the asphalt and concrete of the great modern metropolis, needs a constant supply of uncontaminated water, meat from ranches and rangelands, produce from farms, fish from seas and estuaries, and paper pulp from forests. Even though distant, these natural and cultivated areas are essential parts of the habitat of modern man.

The lands and waters that produce these commodities also harbor the bulk of our wildlife, and their capacity to support fish, birds, and mammals is a good indicator of their capacity for meeting the basic needs of man.

MODERN AMERICANS are only beginning to recognize their close bonds with the natural world. A sign of this is found in changing attitudes toward swamps, marshes, and tidal estuaries. Until recently, wetlands were generally considered worthless until drained

or filled. Unfortunately, many people still consider that their highest economic use is to serve as dumping grounds for the solid and liquid wastes of cities and industries.

The effects of this negative attitude have been apparent for many years. Marshes that once teemed with songbirds, shorebirds, waterfowl, and a variety of mammals, now have their waters clouded by noxious bacteria and algae, and support little but starlings and rats. Many wetlands have disappeared completely under the avalanche of human expansion.

U NSPOILED TIDAL MARSHES rank in economic productivity above the best prairie croplands. Marsh-rimmed estuaries are vital to the more important commercial marine fishes and to crabs, shrimps, and shellfish. Continued destruction of tidal wetlands threatens a major source of human food and the livelihood of many people. A study of tidal bays and estuaries in Massachusetts revealed the presence of 84 species of fish at some stage in their life cycles.

Inland ponds, potholes, and marshes — vital breeding grounds for waterfowl and natural refuges for many other forms of wildlife — also have important economic values. In many places they are essential functioning units of the natural recharging of underground water

supplies — vital to local agriculture, industry, and human existence.

Oil spills and their immediate effects on wildlife are stirring great public indignation, as we see so frequently on the national news. But run-away oil slicks are only symptoms of a deeper problem.

Much of the pollution that originates on the land finds its way to the seas — pesticides carried by the air or washed into rivers, chemical wastes from factories, detergents from laundries and kitchen sinks, untreated sewage, water-soluble solids dumped off-shore, carbon dioxide from heating plants, and lead and carbon monoxide from motor vehicles and aircraft.

THE EFFECTS OF THE CONSTANT and increasing contamination of the air and oceans are already apparent. Some wild species have declined dramatically. The brown pelican has all but disappeared as a breeding species on much of the Pacific Coast and around the Gulf of Mexico. There has been a sharp decline in the nesting success and numbers of bald eagles and ospreys in eastern United States. All of these birds feed heavily on fish, which absorb the persistent pesticides and store them in their tissues. DDT is considered a major culprit in the decline of these birds, as it is in the virtual extinction of the peregrine falcon in eastern North America.

A chilling threat—not only to wildlife but to all life is seen by some scientists today in the cumulative effects of pollution on the oceans. Marine phytoplankton are the bases of food chains in the seas. Without these microscopic plants, all ocean life from the smallest shrimp to the

largest whales would perish. Moreover, phytoplankton have approximately three times as much gross capacity for converting carbon dioxide to usable oxygen as all land plants combined. Their present abundance is essential, these scientists believe, to maintain the oxygen content of the atmosphere at a level that will support life.

But phytoplankton are extremely intolerant of acidity and trace elements, which are common in most pollutants, including pesticides. When carbon dioxide — a near universal by-product of human activity — is absorbed by sea water in quantities beyond those that marine plants can readily convert to oxygen, it creates an acid condition that kills the phytoplankton. Trace elements of other pollutants cause the death of more. If too many die, according to this sobering theory, the oxygen content of the atmosphere will fall, and Earth will become another dead planet.

HOW FAR DOWN THE LINE the world has progressed toward this grim end, no one is sure. But the rising quantities of carbon dioxide in the atmosphere and the fact that DDT has been found in the tissues of Arctic polar bears, Antarctic penguins, and many wild species between the poles are warnings of a possible trend in that direction.

The trend can be reversed, if Americans and people of other nations have the will, intelligence, and prudence to act promptly and vigorously to cure the Earth's environmental ills. Wildlife that is threatened by air and water pollution and by the destruction of essential vegetation, soil erosion, and a general degradation of the environment can be saved.



Yearling beaver carrying baby. It is absolutely necessary now that people act individually and collectively to reverse dangerous environmental trends.



This yucca moth is about to deposit a ball of pollen in the pistil of the yucca plant. The pollen is the dark sphere below the mouth of the moth. (Photos courtesy The State Museum of Natural History.)

That Old "Come Hither" Odor

by
Richard Gechter
Writing Intern
UConn Dept. of English and
State Museum of Natural History

THE FRAGRANT "come hither" odors which flowers produce are the basis for most of the perfumes that people have adopted to attract members of the opposite sex. Although we may find these fragrances highly attractive, they have evolved primarily to attract insects, a fact that no perfume manufacturer will ever advertise.

Since plants cannot move to join their mates, most are dependent upon insects to transport pollen from one flower to another. "Most insects pollinate flowers by picking up the pollen accidentally, and some of that pollen is brushed off on the next flower visited," said Carl W. Rettenmeyer, director of the Connecticut State Museum of Natural History. However, pollina-

tion of the yucca plant is very different. This common Connecticut garden flower is dependent upon just one kind of moth to produce seeds. The moth also needs the yucca plant to produce offspring, and must kill some of the plant's seeds in the process.

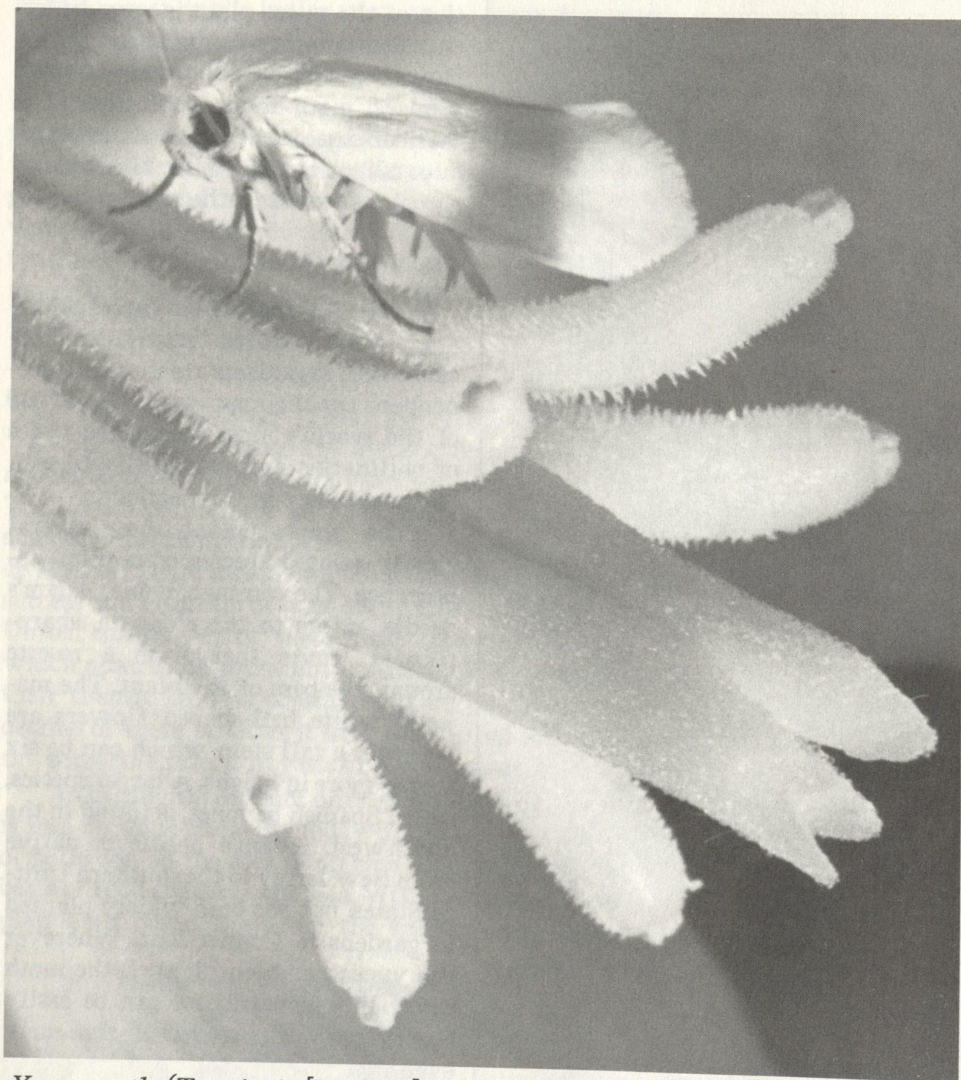
THIS fascinating biological association is called "mutualism" because both organisms are mutually dependent for their survival. This is one of the world's most specialized types of pollination and can readily be seen every summer in Connecticut.

The yucca plant has several closely related species of similar appearance. The common name, Adam's needle, refers to the elongate, sharp-pointed leaves that form a rosette around the base of the plant. The majestic white bell-shaped flowers are borne on a tall stem which can be six feet or more in height. A larger species, called Spanish bayonet, is found in the Southwest. Adam's needle is native from New Jersey to the southern United States, but has been widely planted in gardens in Connecticut. Wherever the yucca has been planted, the moth invariably appears and can be easily observed by flashlight in the early evenings.

The pure white yucca moth closely matches the silky white petals of the bell-shaped flowers. If you look carefully during the day, the moth can be found motionless inside the closed blossoms. At dusk the flower produces more fragrance, and the moth becomes active, often flying from flower to flower.

The female moth climbs up the stamen (the male part of the flower) and uses its mouth parts to collect a mass of pollen.

One moth will collect a pollen mass two to three times the size of her head. Then she runs down to the base of the stamen and climbs up the pistil (the female part of the flower). At the top of the pistil, the moth vigorously packs the pollen into the central cavity.



Yucca moth, (Tegeticula [Pronuba] yuccasella), on the stamen inside the yucca flower.

Although the moth is following instinct, Dr. Rettenmeyer, an entomologist, finds that the moth's pollinating behavior appears to be more purposeful than that of any other pollinating insect he has ever seen.

After depositing her pollen, the moth proceeds down the pistil to the base where the ovary is located. There the moth lays her eggs in the ovary where the yucca seeds will be produced. According to Riley, "the larva hatches in about a week. It is not more than one millimeter long and seems to live for some time on the juices of the degenerate and swollen ovules."

The larvae eat some of the developing seeds of the yucca but never all of them. If the moth became too abun-

dant, the larvae might eat all the seeds and the moth would become extinct, along with the plant.

"It is not known whether there is some specific mechanism to keep the yucca moth at a low population to insure seed production," said Rettenmeyer.

This summer, take the time to smell the flowers of the yucca plant. If you try this at different times of the day, you may be able to tell that the odor increases at dusk when the moths are most active. Be careful not to jar the flowers. With a flashlight, you can watch the moth perform its annual pollination ritual, one of the most interesting insect behaviors you can find in Connecticut.

Wildflower Festival

At its Fourth Annual Wildflower Festival on Sunday, June 11, The Connecticut State Museum of Natural History at UConn in Storrs will offer a rare opportunity to see more than 150 living wildflowers, learn about threatened species and attend lectures, workshops, and demonstrations for children and adults. The Festival will be in The University of Connecticut's Jorgensen Auditorium, Hillside Road, Storrs, on June 11 from 1 - 5 p.m. Admission is \$3 for the general public, free for Museum members and children. For information, call (203) 486-4460.

Lectures will include: "Your Favorite Wildflowers - Up Close and Personal," by authors Don and Lillian Stokes, at 1:30 p.m.; "Wreaths," by Adelma Grenier Simmons of Capri-lands Herb Farm, at 3 p.m.; and "Native Flowering Shrubs," by Edwin D. Carpenter, Professor of Ornamental Horticulture at UConn.

On going activities include: "Rare and Endangered Plants," a slide show by the Connecticut DEP; "Creating Your Own Prints from Nature"; and "Habitats," three terrarium exhibits by naturalist Lois Kelley.



The common yucca grown in Connecticut gardens has a stem about six feet high bearing numerous flowers.



The development of an effective rivers management program will be one of the DEP's highest-priorities. (DEP file photo.)

Advisory Committee on the Rivers

by
Wanda A. Rickerby
 Executive Assistant
 DEP

CONNECTICUT RIVERS supply the people of the state with the chance to enjoy nature and to get rid of wastes, to fish for food, and to cool off with a summer swim. Deciding how to combine all these activities without damaging the environment will be the goal of a new Rivers Advisory Committee established by the DEP.

The announcement came as part of Commissioner Leslie Carothers' remarks at the DEP's annual Environmental Conference. The conference, which focused on Long Island Sound, included a panel on "Rivers and Fresh-water Flows to the Sound."

In announcing the new Committee, Carothers cited increasing conflicts between competing uses of the state's river resources. "Because of competing needs for water supply, wastewater assimilation, recreation, and other uses, rivers in Connecticut need to be better managed as well as protected," she said. The commissioner called the for-

mation of the Advisory Committee "the first step toward development of an effective river management strategy for Connecticut."

The 25-member committee is composed of citizen, agency, and industry representatives, reflecting the wide range of river-related uses and interests.

Carothers also announced that the National Park Service has approved funding for 1989 to assist the DEP in developing and implementing an assessment of Connecticut's rivers and streams. The assessment will consist of a comprehensive, systematic evaluation of river resources. The commissioner said that the assessment, which is expected to take two years to complete, will provide a framework for determining appropriate conservation, use, and management of the rivers and streams for Connecticut.

"I'm very pleased about the Park Service decision to

assist us in this area," Carothers commented. "This offer of technical assistance enhances DEP's ability to achieve some of our river protection goals despite current fiscal constraints".

The state Rivers Assessment is funded by the U.S. Congress through the state and local River and Trail Conservation Assistance Program, authorized under Section 11 of the Wild and Scenic Rivers Act. The purpose of the Park Service Program is to provide technical assistance to state and local governments and private organizations for river and trail conservation projects.

"I plan to ask the Committee for advice on the assessment process at our very first meeting," Carothers said.

The importance of improved river management to the protection of Long Island Sound was made evident at the conference. Robert Smith, assistant director of DEP's Water Compliance Unit said "the nine rivers entering Long Island Sound contribute the greatest portion of the total pollutant load that enters the Sound." Among the factors which contribute to these pollutant loads are wastewater treatment plants, urban and non-urban run-off, and direct discharging industrial facilities.

The River Management Program

Toward A Statewide River Management Program

AT PRESENT, CONNECTICUT'S approach to the management of its rivers and water resources is highly fragmented. Within DEP, there are no less than seven units which have major responsibilities for some facet of river management. In addition, several other state agencies and many local and federal agencies also have responsibilities for different aspects of water resources management affecting rivers.

A strategy must be developed to integrate activities occurring at all levels of government; coordinate efforts of a broad range of programs and organizations with diverse missions, while ensuring statewide consistency; and to fit rivers concerns into a broader water management perspective.

Environment/2000: Connecticut's Environmental Plan, identifies rivers as one of the state's priority environmental issues. Citing increasing conflict and competition for use of Connecticut's rivers, streams, and adjacent lands, the plan sets forth a series of goals, objectives, and strategies directed toward development of a statewide river management program that minimizes conflicts, provides diverse public opportunities, and maintains the environmental integrity of watercourses:

Goal: Conserve Connecticut's rivers and streams.

Objective: Develop and implement a

statewide rivers management program.

Strategies:

1. Undertake an assessment of Connecticut's rivers and streams and their associated values in order to determine beneficial uses and appropriate management.
2. Develop and implement a comprehensive rivers program.
3. Provide technical and financial assistance to municipalities undertaking the development of river corridor management plans, which include local stream preservation and policies and programs.
4. Establish a state rivers clearinghouse to coordinate and share information.
5. Oppose the diversion of interstate watercourses that impact the availability of water in Connecticut for public and environmental needs.

The following actions are designed to advance the state's river management goals. The baseline data developed in the inventory and assessment phase will also prove invaluable in addressing the state's other priority environmental issues.

Short-term actions:

- A. Establish an Advisory Group to assist DEP in defining and developing a statewide river management program.

- B. Conduct an inventory and assessment.

1. Establish priorities for conducting inventory and assessment.
2. Identify, within each sub-regional drainage basin, primary uses and values, secondary/competing uses and values, and conflicts which need to be resolved.

- C. Develop a strategy to manage the range of uses within the basin (as opposed to protection of a single natural area or use).

- D. Improve coordination of state programs.

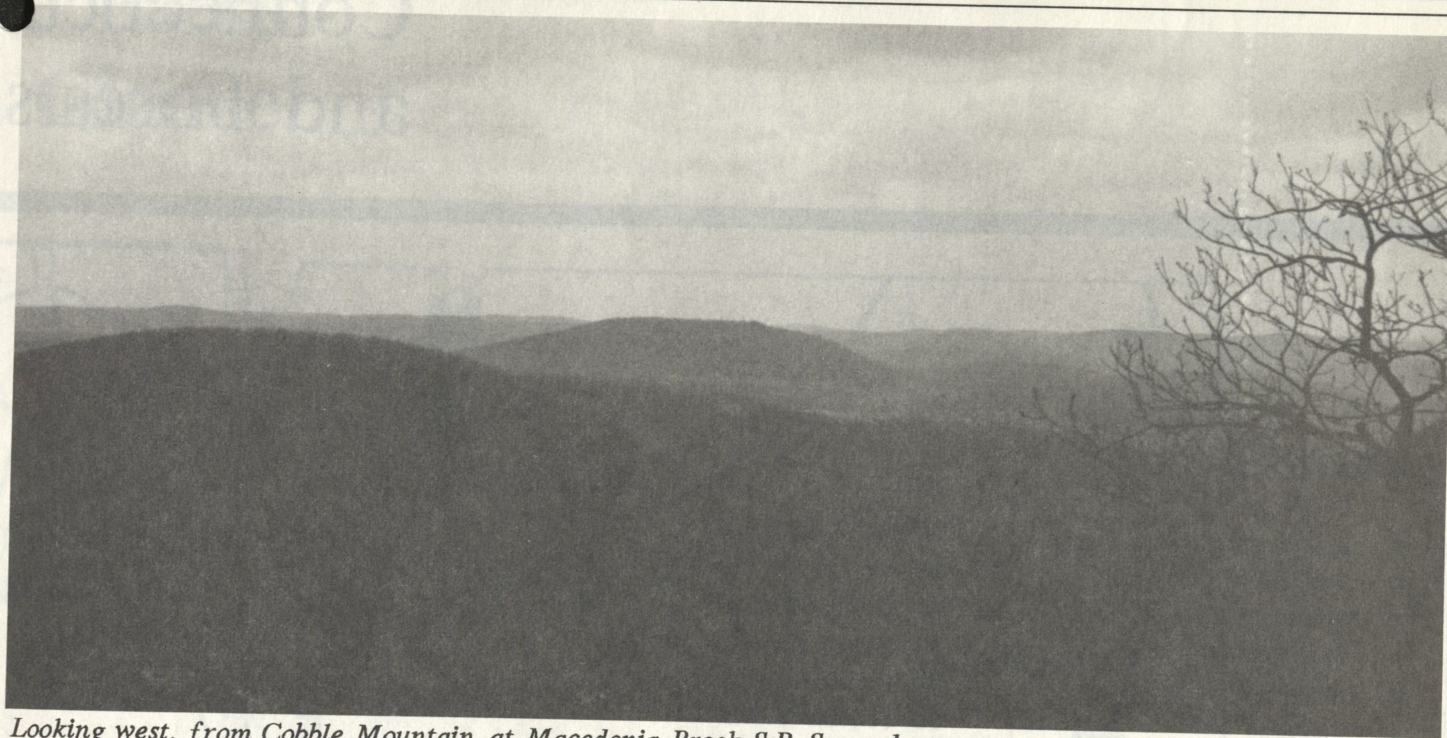
- E. Improve education, public participation, and technical assistance efforts.

- F. Identify research needs which can be addressed either through existing Federal/state cooperative programs or through new or expanded efforts.

Long-term actions:

- A. Develop and implement a Comprehensive Statewide River Management Program.

1. Develop policy, goals and objectives.
2. Establish priorities for implementation of river management program objectives.
3. Implement management programs designed to achieve policy goals and objectives.



Looking west, from Cobble Mountain, at Macedonia Brook S.P. Somewhere, way out there, the Pacific Ocean.

An Invitation to Macedonia Brook S. P.

by
Robert Paier

CONNECTICUT is a state of the secret, off-the-beaten-path spot, places that you have to make just a little bit of effort to find, places that are real easy to miss. One such place is Macedonia Brook State Park, in the northwestern part of our state in Kent. In Connecticut, there really aren't any bad state parks, but Macedonia Brook has something special. If you go there at the right time, when conditions are just right, you get the feeling you're entering what can only be described as a kind of enchanted area.

The park is situated on about 2,300 acres. There is camping, hiking, picknicking, fishing. That's standard. But there are other things. First of all, running, meandering, dancing through the

park is Macedonia Brook itself. From what I've seen to date, I would have to say it is the loveliest brook in Connecticut. There is a joyful, happy feeling about that brook. It invites you to play.

And there is also a very rugged quality to this state park. While you can pick your hiking trails to suit your stamina and mood, there are some truly spectacular views to be had here, and if you can possibly make it, you should go for it. How good shape should you be in? Probably just a tad better than I am would be optimum. I walked up the White Trail to the tip of Cobble Mountain, elevation 1,350 feet. Up there, away from the cities of the plain, you understand why some people choose to live on mountain peaks. It was windy that day, and the wind was rolling, rolling along the valley below. Off to the west, you could see the Berkshires, and you could sense after that the Great Plains, the Rockies, the Pacific Ocean itself. Maybe your muscles will be sore for a day or so after the climb. It's worth it.

Macedonia Brook State Park is real Indian country. In other times, it was the domain of the Schaghticoke, the

Mohegans, the Waramaug, and other tribes. And, if you climb up to one of the rocky peaks, if you sit quiet and still for a while, if you let your gaze sweep out mile after mile, you just might feel the spirit of a brother from another time there with you. And, no doubt, you will think how nice it must have been, a long time ago, when things were a little less complicated.

Macedonia Brook is just a mile or so down Route 341, west of the center of Kent. If you get a chance, take a ride out there. I don't think you'll be disappointed.

Macedonia Brook State Park

Activities: Stream fishing, camping (84 sites), hiking, picknicking, field sports, cross-country skiing, historic area.

Services: Picnic shelter, drinking water, gravel parking, outhouses, telephone.

Charge: None.

(This is the first of a series of articles on Connecticut's state parks. Watch for more in upcoming issues of Connecticut Environment.)

Connecticut and Forests

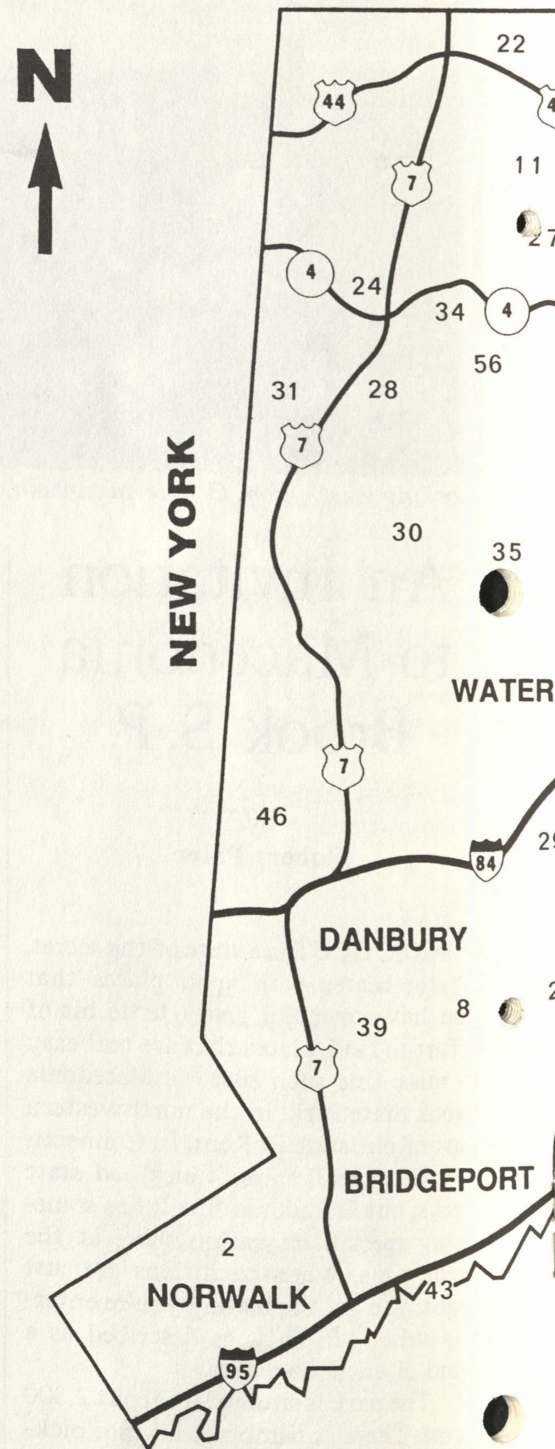
STATE PARKS

- 1 American Shakespeare Theatre
- 2 Bartlett Arboretum
- 3 Bigelow Hollow
- 4 Black Rock
- 5 Bluff Point Coastal Reserve
- 6 Burr Pond
- 7 Chatfield Hollow
- 8 Collis P. Huntington
- 9 Connecticut Valley Railroad
- 10 Day Pond
- 11 Dennis Hill
- 12 Devil's Hopyard
- 13 Dinosaur
- 14 Fort Griswold
- 15 Fort Shantok
- 16 Gay City
- 17 Gillette Castle
- 18 Haddam Meadows
- 19 Haley Farm
- 20 Hammonasset Beach
- 21 Harkness Memorial
- 22 Haystack Mountain
- 23 Hopeville Pond
- 24 Housatonic Meadows
- 25 Hurd
- 26 Indian Well
- 27 John A. Minetto
- 28 Kent Falls
- 29 Kettletown
- 30 Lake Waramaug
- 31 Macedonia Brook
- 32 Mansfield Hollow
- 33 Mashamoquet Brook

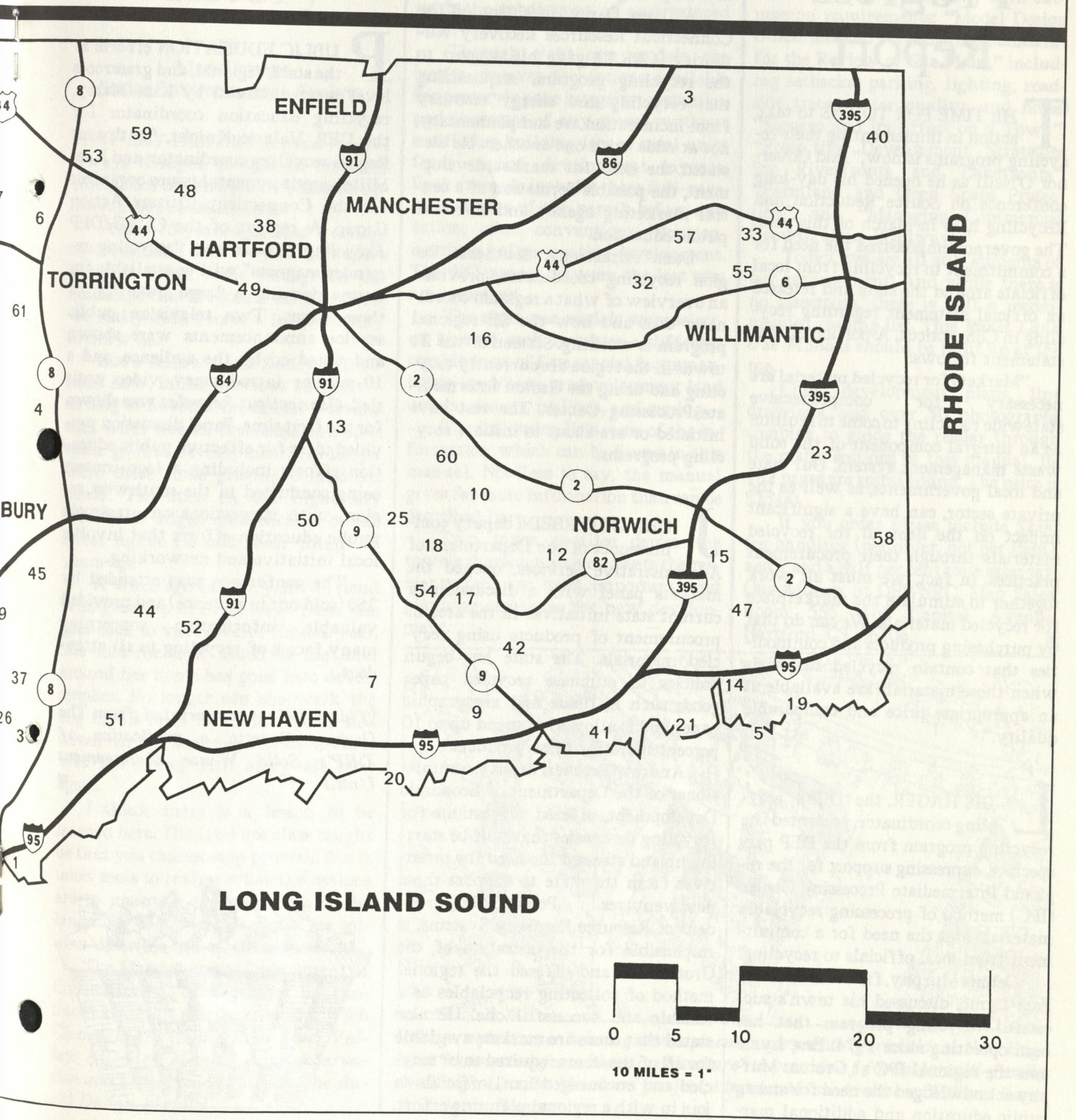
- 34 Mohawk Mountain
- 35 Mt. Tom
- 36 Osbornedale
- 37 Osborne Homestead Museum
- 38 Penwood
- 39 Putnam Memorial
- 40 Quaddick
- 41 Rocky Neck
- 42 Selden Neck
- 43 Sherwood Island
- 44 Sleeping Giant
- 45 Southford Falls
- 46 Squantz Pond
- 47 Stoddard Hill
- 48 Stratton Brook
- 49 Talcott Mountain
- 50 Wadsworth Falls
- 51 West Rock Ridge
- 52 Wharton Brook

STATE FORESTS

- 53 American Legion
- 54 Cockaponset
- 55 James L. Goodwin
- 56 Mohawk
- 57 Natchaug
- 58 Patchaug
- 59 Peoples
- 60 Salmon River
- 61 Topsmead



State Parks at a Glance



Recycling Progress Report

THE TIME FOR TOWNS to take action in implementing their recycling programs is now," said Governor O'Neill as he opened his day-long conference on Source Reduction and Recycling held in March of this year. The governor emphasized the need for a commitment to recycling from local officials around the state and released an official statement regarding recycling in Connecticut. A portion of that statement follows:

"Markets for recycled material are necessary for comprehensive statewide recycling to come to fruition as an integral component of the solid waste management system. Our state and local governments, as well as the private sector, can have a significant impact on the demand for recycled materials through their procurement practices. In fact, we must all work together to stimulate the marketplace for recycled materials. We can do that by purchasing products and commodities that contain recycled materials when those materials are available at an appropriate price and comparable quality."

LOIS HAGER, the DEP's recycling coordinator, presented the recycling program from the DEP perspective, expressing support for the regional Intermediate Processing Center (IPC) method of processing recyclable materials and the need for a commitment from local officials to recycling.

Dennis Murphy, first selectman of East Lyme, discussed his town's successful recycling program that has been operating since 1974. East Lyme uses the regional IPC at Groton. Murphy acknowledged the need for strong public education and additional mar-

ket support from the state to keep the markets moving. He offered tours of his town's facilities and copies of the ordinances currently in place to mandate recycling at the local level.

William Darcy, president of the Connecticut Resources Recovery Authority (CRRA), gave his support to the recycling program, emphasizing that recycling and energy recovery from incineration are complementary, not at odds with one another. He also stated the need for market development, the possible formation of a central marketing agency and effective public education.

Dana Armstrong, Southeast Region recycling coordinator, provided an overview of what a regional coordinator does and how the SE regional program is working. Sixteen of the 21 towns in the region are currently recycling and using the Groton Intermediate Processing Center. The rest have initiated or are about to initiate recycling programs.

JOHAN OTTERBEIN, deputy commissioner of the Department of Administrative Services, opened the markets panel with a discussion of current state initiatives in the area of procurement of products using recycled materials. The state has begun policies to purchase recycled paper goods such as tissue and xerographic paper and is allowed to spend up to 10 percent more for these products.

Andrew Brecher, deputy commissioner of the Department of Economic Development, offered suggestions for recycling businesses that will be starting up and stressed the need for incentives from the state to support these new ventures.

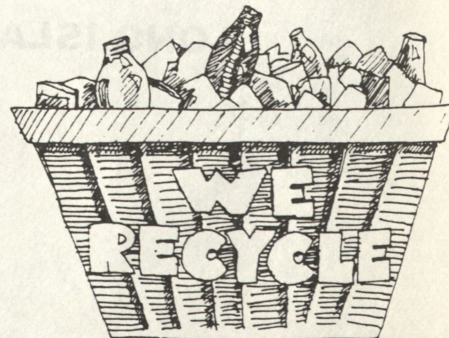
Peter Karter, president of Resource Recovery Systems, is responsible for the operation of the Groton IPC and offered the regional method of collecting recyclables as a reliable and successful one. He also stated that there are markets available for all of the items required to be recycled and encouraged local officials to join in with a regional planning effort.

Anne Gobin, senior environmental analyst for the DEP, discussed market strategy for the recycling program, how to stimulate markets, and the supply-demand aspects of markets.

PUBLIC EDUCATION efforts at the state, regional, and grassroots level were discussed by Kim Marcy, recycling education coordinator for the DEP, Valarie Knight, Southwest Region recycling coordinator, and Kate Miller, environmental issues organizer for the Connecticut Citizen Action Group. A reprint of the CCAG/DEP *Recycling Primer* and "recycling reminder magnets" will be available for towns desiring a large quantity of those items. Two television public service announcements were shown and voted on by the audience, and a 10-minute introductory video entitled, *Connecticut Recycles* was shown for the first time. Panel discussion provided ideas for effective public education efforts including a logo contest being conducted in the southwest region, with suggestions on grassroots public education efforts that involve local initiative and networking.

The conference was attended by 350 (sold out in advance) and provided valuable information concerning many facets of recycling to all attendees.

(This article was reprinted from The Garbage Gazette, a publication of DEP's Solid Waste Management Unit.)



Repeating History

by

Alan Levere

Senior Environmental Analyst

THEY SAY HISTORY repeats itself. I always thought of that in terms of world conflict and major political upheaval. But consider this:

About 15 years ago, I had a college course in land use. We had to prepare a report about some change on the landscape that we knew of. At age 19, we really didn't have a lot of history to draw on.

But a fellow from Rocky Hill related how, in the previous 13 years — as long as he could remember — he had seen what was all farmland and open space go into development. No longer were there cows grazing behind his house. The stars in the night sky weren't as bright now because of the street lights. He said these things 15 years ago.

A while ago I spoke with a friend who grew up in rural New York. She goes back to visit several times a year. She told me how much of the land around her home has gone into development. No longer can she walk the dog in the open field, or hope to sled down the hill at the end of the road. It was the Rocky Hill story all over again.

I think there is a lesson to be learned here. The land use class taught us that you cannot stop growth. But it takes tools to realize what the options are to maintain the character of the landscape as growth occurs. This column describes one of those tools.

The Massachusetts Department of Environmental Management has produced a volume entitled *Dealing With Change in the Connecticut River Valley: A Design Manual for Conservation and Development*, or just *The Rural Design Manual*.

This manual shows how land development can occur without changing the character of the landscape. It provides help and guidance for any community, urban or rural, involved with the subdivision of undeveloped land.

Through eight case models, the reader observes the options available for preserving the integrity, aesthetics, and character of any parcel, without sacrificing building lots or total units from typical development layouts. Each example includes three full-page, color views of the parcel: before any action; after conventional development; and after creative development. The differences between the last two are immense.

The eight case models were selected because each involves a different combination of five crucial factors: existing landform, predevelopment land use, landcover, utilities, and zoning.

The following lists some of the information which can be found in this manual. Needless to say, the manual gives far more information than can be described here.

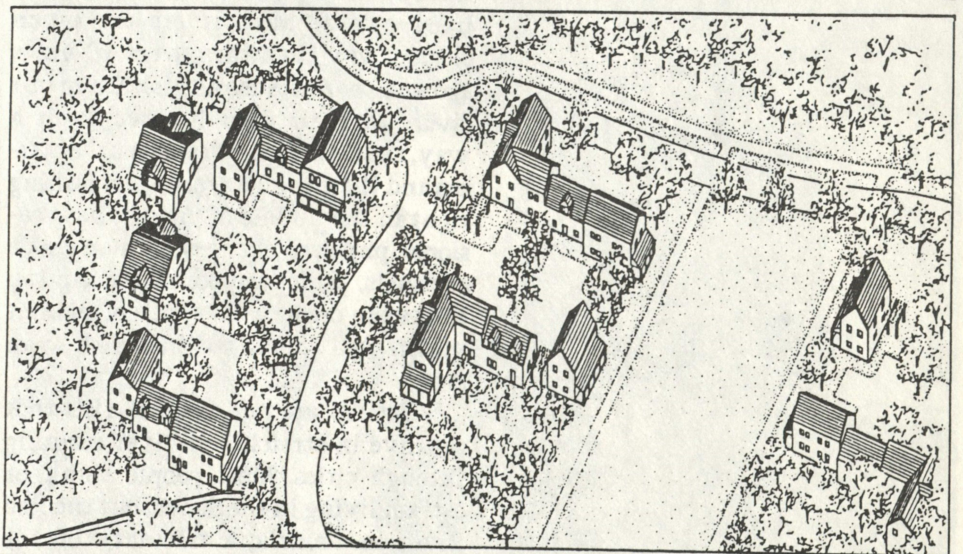
Two town profiles depict the town's character, values, assets the residents feel are most important, and planning strategies for new development.

A series of specific instructional sections follows the profiles. These are: "Specific Tools for Integrating New Development," which includes a model site plan review bylaw, with submission requirements; "Model Design Guidelines and Performance Standards for the Review of Site Plans," including setbacks, parking, lighting, roadside trees, water quality, and noise; "Signage and its Effect on a Town"; "Protective Development Strategies for Riverfronts and Lakefronts"; "Farmland and Open Space Protection"; and "Managing Commercial Growth along Roadways."

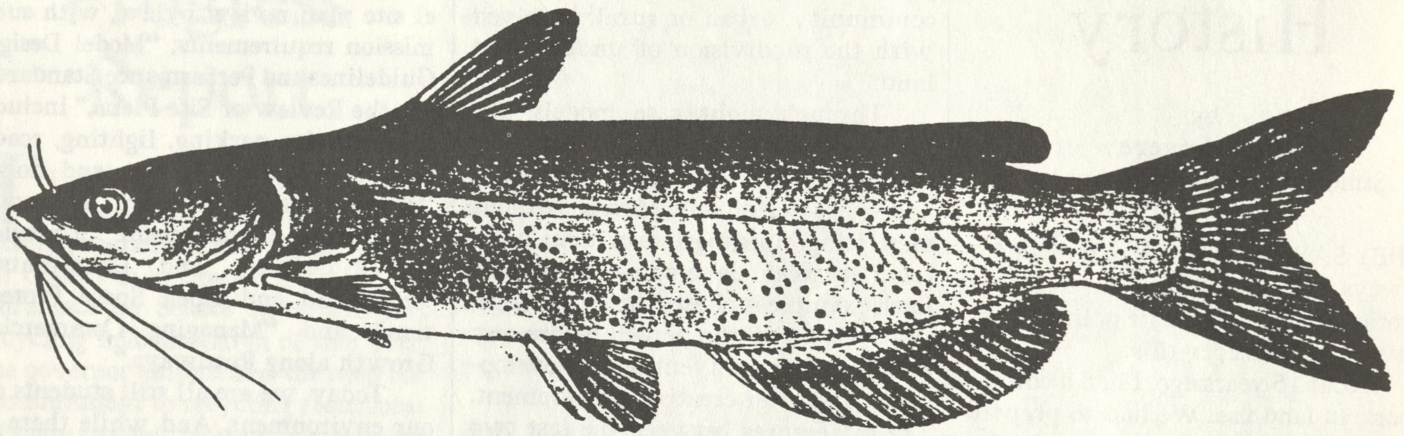
Today, we are all still students of our environment. And while there is no classroom, there is still a recommended reading list. This *Rural Land Use Manual* should be right up at the top.

Color development plans, line drawings, and over 50 photographs combine to guide the reader through the many sections of this manual. Its 182 pages are spiral bound. The price is \$25.00.

If you order please include \$2.00 for handling (per order, not per item), and 7 and a half per cent state sales tax. Our address is: DEP-NRC, Map Sales, Room 555, 165 Capitol Avenue, Hartford, CT 06106.



Village style cluster housing development, incorporating traditional New England "connected farmhouse architecture" to provide affordable multi-family dwellings. Lincoln Meadows project, Lincoln, Mass. Architect: William Rawn Associates, Boston.



The Channel Cat

Still thriving in Connecticut

by
Jeff Carlson

HAVE YOU EVER DRIVEN on a highway bridge over a river, looked down, and wondered what lived below? Most rivers are much cleaner now than they were 10 years ago and there are many fish using our rivers as their own highways. In a way, the river brings fish to urban areas and there can be great sport fishing right in the middle of cities. The occasional physical changes of man-made channels, bridge supports, and rip-rap banks can create a diversity of habitat which will actually attract fish to an area.

Catfish are one type of fish that can live in stretches of river running through cities. Most people think of catfish living in the South, but the Red River in Canada, a tributary of the Mississippi, is becoming recognized as one of the best rivers for numbers of big catfish. A catfish derby is held each summer in Massachusetts with fishing

allowed anywhere on the Connecticut River. In 1988, the winning fish was a channel cat over 12 pounds and anything under seven pounds didn't even place in the top 15 fish. My wife and I entered last year. We fished in Hartford on a Friday night from 10:00 p.m. to 4:00 a.m. We caught and released about 40 fish, the largest being one which weighed six pounds, five ounces, and was released after weighing.

Night fishing seems best but it is not necessary. For some reason, the fish seem a little larger in Massachusetts than in Connecticut. A typical cat in Connecticut will run two to four pounds, with fish to six pounds being fairly common. Channel cats and white cats are found throughout the Connecticut River, although channel cats seem more common around Hartford and I have only caught white cats south of Essex. White cats are found in

the Housatonic and Thames Rivers and some ponds and lakes. Bullheads, smaller cousins of the catfish, generally weigh less than one pound and are very common in most ponds in the state.

The Connecticut River is tidal south of Hartford, although the tide effect is not always noticeable. Catfish, like other fish, will relate to "structure" and may put themselves above or below a deep hole when they are in a feeding mood. You will rarely catch a bunch of fish in a flat stretch of river bottom. The tide seems to turn the fish on and off, with a good current (falling tide) generally best.

CATFISH are bottom feeders. They are best taken with bait fished with a weight heavy enough to just hold bottom. This may be as much as five ounces if you are fishing in a fast current. Bait can be almost anything, although freshly dead or frozen fish will catch mostly catfish. If you choose to fish with worms, you will catch everything, including eels. Setting the hook quickly after the fish takes the bait will reduce the chance of gut-hooking and possibly killing the fish. Channel catfish do act like gamefish and will hit lures. Many bass fishermen have been surprised to pull in a lowly catfish after battling what they thought was a nice bass.

There is an advisory against eating fish from most of the Housatonic River because of PCB contamination. Limited testing of catfish was done on Connecticut River fish from Hartford after Massachusetts found levels above the guideline 2.0 parts per million of PCBs. The results did not warrant issuing a warning for the Connecticut River fish.

PERHAPS THE STRANGEST catfishing excursion I ever had came by accident. One September, my brother-in-law and I were crabbing just above the Baldwin Bridge which carries Route I-95 over the Connecticut River from Old Saybrook to Old Ly-

me. We were using fish heads on two fishing rods and several other fish heads tied to handlines to catch big tasty blue crabs. As the tide fell, we twice had something pick up a fish head and snap the line. One of the two times it was a heavy nylon cord with the fish head only *tied* on. We guessed they were bluefish but my thoughts turned to the movie *Jaws* and the two guys throwing the family's Sunday roast off the dock. We rigged with wire leaders for bluefish. The next hit was a smaller fish and turned out to be a three-pound white catfish. For the next hour we caught blue crabs, white catfish, and big bluefish, never knowing what would grab our bait next.

They will not replace trout or bass as a "glamor" species, but if you like the challenge of big, strong, smart fish in some very accessible spots, catfish are just the ticket.

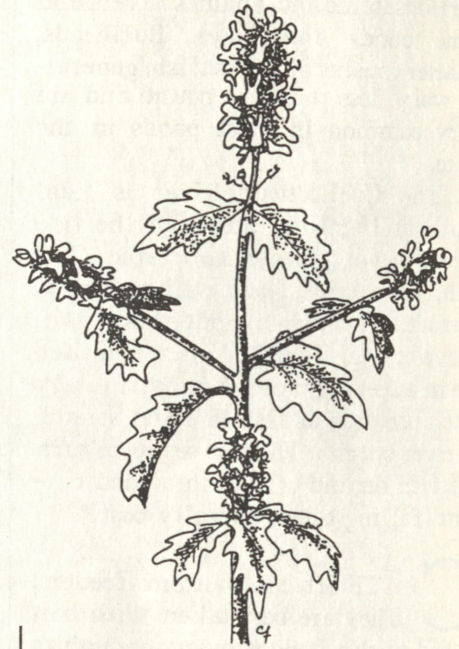
(The author is an instructor in the Connecticut Aquatic Resources Education Program) ■



The author with fishing partner, Suzanne Carlson, age two. The channel cat in the picture was taken from the Connecticut River, and weighed about three pounds. It was released back to the river.

An Introduction to the Mint Family

by
Gale W. Carter
Illustrations by
Caryn Furbush



Catnip
(*Nepeta cataria*)

A S A FAMILY, mints (*Labiatae*) are generally easy to recognize because of the fragrant odor that most of them produce. They produce essential oils that can be distilled from the plant. Distinguishing one genus or species from another, however, may require close attention to details.

Many species of mint are familiar to us because of their uses as household smells or flowers for ornamental, medicinal, and industrial uses. A good number of mints were brought to America by the early Colonists to be planted in their herb gardens. Some of these mints escaped and have become naturalized. Others are native species. The family name, *Labiatae*, is a Latin word referring to the appearance of the corolla which has two lips (*labia*).

T HE FOLLOWING are general characteristics of the mint family:

- The corolla is tube- or funnel-shaped with two lips, usually a two-lobed upper lip and a three-lobed lower lip.
- Typically, there are four stamens but some genera may have one pair that is sterile or missing.
- The stem is usually square (but not all squared stems are mints)

and the leaves are opposite.

- The ovary has four compartments and the style is long and split at the end.
- The fruit consists of four nutlets, or achenes.
- The flowers are usually in heads, spikes or racemes.
- Often there are tiny glands on the leaves and stem that secrete the aromatic oil that gives the plant the familiar minty smell.
- The calyx is commonly five-toothed.
- A fleshy disk at the base of the ovary secretes nectar.

What are some of the common mints and how do they differ? Let's see.

C ATNIP (*Nepeta cataria*) is an aromatic mint with a branched grayish-green stem that may grow to a height of up to three feet. Its arrow-shaped leaves with their long stalks have either scalloped or notched margins and are coated with fine white hairs.

The two-lipped corolla is usually white with purple dots, but may be blue or purple. There is a single pistil with forked style. Each flower has four stamens. The flowers are borne in spike-like clusters at the ends of the

branches. Blossoming time is from June to September. The fruit consists of four brown nutlets.

This naturalized plant from Europe grows in areas where the soil is disturbed, such as vacant lots, barnyards, and old abandoned gardens.

The genus name comes from Nepeta, a city in Northern Italy during the Roman Empire. The species name *cataria* means "fondness for cats," a reference to the favorable response that cats give to this plant.

A tea made from the leaves of catnip promotes profuse sweating, similar to the effect of yarrow tea. It has been used for the treatment of colds, stomach ache, and insomnia. Catnip has a very relaxing effect on the muscles of the body. It has been found to contain a chemical called nepetalactone which repels insects and is the substance that affects the behavior of cats. Cats are stimulated by the leaves when they eat them, either fresh or dry, and are attracted to the plant only if it is slightly bruised. The chemical that produces the odor is found in glands on the surface of the leaves.

MOCK or American pennyroyal (*Hedeoma pulegloides*) is a very slender plant with tough branching stems, growing to a height of four to 18 inches. The small leaves are lance- or egg-shaped and are pale green. Its tiny flowers are violet or bluish, a few in a cluster, arranged in whorls in the axils of leaves. There are two functioning stamens and a second pair may be sterile or absent. The calyx is swollen and hairy with two short teeth above and three long curving teeth below. Blossoming time is July to September. This native of North America grows in dry fields, pastures, and woodlands where the soil is sandy or gravelly.

The genus name, *Hedeoma*, comes from two Greek words meaning "sweet aroma," a reference to the smell of the oil of pennyroyal contained in the plant. Its species name, *pulegloides*, meaning "like *peleguin*," refers to *Mentha puleguin* of Europe, the true pennyroyal. These two species have almost the identical odor and taste.

The American Indian used pennyroyal in a tea to relieve headaches and menstrual cramps and as a treatment for fevers and muscle spasms. Oil of pennyroyal is used in soaps and has long been used as a flea and mosquito repellent.

BEE BALM OR OSWEGO TEA (*Monarda didyma*) is a native North American mint with a stout hairy stem that grows from one to four feet in height. Its dark green to bluish green leaves are thin and sharply toothed. The flowers appear in dense heads usually at the top of the stem but sometimes may be present in the upper leaf axils. Its corolla is long and tubular and an eye-catching red. There are two stamens that extend beyond the corolla and a single two-parted style that exceeds the stamens. The calyx is green with five-pointed teeth and is supported by reddish bracts. Bee balm blossoms from July to



Bee Balm or Oswego Tea
(*Monarda didyma*)

September. It prefers wet sites along streams, roadsides, and in moist woodlands.

The genus name honors Nicholas Monardes, a Spanish botanist and physician. *Didyma*, the species name, comes from a Greek word meaning "paired" or "twined," alluding to the two stamens present in each flower.

This species is sometimes referred to as one of the horse mints, "horse" meaning "coarse" compared to the true mints (*Mentha*). It is also sometimes called "Bergamot" because its fragrant odor was thought to be similar to the Bergamot orange of Italy.

Bee balm has had many uses. The name Oswego tea originated because of its use as a tea by the Oswego Indians of New York. The early Colonists also used it as a tea substitute when they were boycotting English tea prior to the Revolution. Herb doctors used it for digestive disturbances and for reducing fevers.

The oil has been used in soaps and perfumes. It is often used as an ornamental in shady gardens; hummingbirds and butterflies seek out its nectar.

BUGLEWEED or waterhorehound (*Lycopus virginicus*) is a native species that is four to 24 inches in height. It lacks the typical minty smell but when fresh gives off an odor similar to turpentine and it has a taste that is slightly bitter.

The leaves of this species are egg-shaped and sharply toothed. They are dark green and tinted with purple. Flowers of bugleweed have a tiny, usually white, corolla that scarcely shows the typical two lips. There are four stamens but two of them are sterile. The flowers appear in dense clusters in a whorl at the point where the leaves are attached. The calyx in this species usually has four teeth that are only slightly pointed. A similar

species (*Lycopus americanus*) usually has five teeth that are short and sharply pointed. This is a good way to separate the two species. Blossoming time is from July to October. Bugleweed is usually found growing in rich moist soil in fields and woodland.

The genus name comes from two Greek words — *lycos*, meaning “wolf,” and *pous*, meaning “foot.” The leaves of a European species that grows in water were thought to resemble a wolf’s paw.

Bugleweed was once called *Mar-rubium*, the present name for horehound. The common horehound (*Mar-rubium vulgare*) is widely used in the United States in medicines and in candy making.

The name bugle comes from the fancied similarity of the flower to a pin with a tubular head that was used to decorate the hair of medieval ladies.

Bugleweed was used in many ways medicinally. One of its greatest values was in stopping bleeding from the lungs, stomach, or bowels, and as a sedative. It was also used in the treatment of diabetes. The parts of the plant were usually used in a tea or an infusion. Indians used the rootstalk for food.

MAD-DOG SKULLCAP (*Scutellaria laterifolia*) has a stem that may or may not be freely branched. It varies in height from one to three feet. There is no odor to the plant, and it is bitter. The leaves vary from egg-shaped to lance-like and have toothed margins. They have stalks that are about an inch in length.

The flowers are in one-sided racemes growing out from the axils of the leaves. Its corolla is blue to violet and is about one-third of an inch long. This is tube-like with an upwardly curved upper lip and a flat lower lip. Each flower has four stamens, one pair being shorter than the other. The calyx is very distinctive. It has a hump or dish (*scutella*) on the upper side. Blossoming time is from June to September. The skullcap grows in moist

woods and meadows.

The genus name is derived from the Latin word *scutella*, meaning “dish,” a reference to the hump on the upper side of the calyx. Its species name means “flowers on the side,” a description of the manner in which the flowers are arranged on the stem.



Peppermint
(*Mentha piperita*)

The common name “mad-dog” originated from the plant’s supposed effectiveness in treating rabies. The name “skullcap” comes from the fancied resemblance of the calyx to a leather skullcap worn by the Romans.

Early doctors used the plant in many ways, including treatment of St.

Vitus Dance, neuralgia, convulsions, rabies, and delirium tremens. There now appears to be a scientific basis for its effectiveness. Scientists have been able to extract an antispasmodic substance from the dried flowers called scutellaine.

PEPPERMINT (*Mentha piperita*) is one of a number of species in the genus *Mentha* that we commonly call the “true mints.” This may be because we are so familiar with them and their many common uses.

This species of mint was brought to this country for use in the Colonial garden. It has since escaped cultivation and is now naturalized. Some botanists believe that it is a hybrid of spearmint (*Mentha spicata*) and water-mint (*Mentha aquatica*).

Peppermint is a smooth, erect, branching herb that grows to a height of from one to three feet. It often has a purplish or reddish stem. The leaves are lance-shaped, sharply toothed, and stalked. Its flowers are in clusters that form an interrupted terminal spike. The pink to pale violet corolla is not typical of the mint family, appearing almost regular with all parts of the corolla seeming to be nearly equal. Each flower has four stamens. Blossoming time is June to October. The habitat of peppermint is wet areas along streams and in moist meadows and roadside ditches.

Mentha, the genus, is named from an ill-fated nymph Minthe, who was supposed to have been changed into a sweet smelling herb by the god Prosperpine as a result of his jealousy. *Piperita*, the species name, means “peppery,” describing the hot taste of the leaves due to the presence of a strong pepper-like oil.

Peppermint oil, with its main constituent menthol, is used to flavor candy, soaps, chewing gum, tooth pastes, perfumes, liquor, and mint. It has been used medicinally to treat rheumatism, toothache, neuralgia, stomach troubles and colds.

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Connecticut's Dandy Summer Schedule

June 10: Connecticut River Bass and Catfish Tournament. Riverside Park (Hartford) Boat Launch. 5 a.m.-3 p.m. Prizes for bass (combined weight, two-man team) and largest catfish caught. First, second, third place prizes. Also Learn to Fish clinics at 9 a.m., 11 a.m., and 12 noon; equipment available and no fishing license required. No charge.

June 11: Day-long Revolutionary Encampment by the Second Connecticut Regiment, Fort Griswold Historic Park, Groton. 10 a.m. to sunset. The Second Connecticut Regiment will offer a day of military drills and demonstration of Revolutionary War camp life. No charge. Information: 445-1729; 889-6275.

June 25: Family Outdoor Discovery Program: Black Ledge River Walk, Gay City State Park, Hebron. 1 p.m. See the plants and wildlife that call the river home. Learn about watercourses and watersheds. Waterproof footwear. No registration necessary. Park is on Route 85, two miles north of Route 94. No registration necessary.

June 25: The Great Pachaug Canoe Race, Hopeville Pond State Park. Sign-up: 9:30-10:30 a.m. Race starts at 11 a.m. Six miles for novices or recreational canoeists; eight miles for racers. Sponsored by Connecticut Canoe Racing Association. Entry fee: \$6 per paddler. Information: Jim Kendall, 376-3685; Bob Bromley, 376-4009.

July 4: Revolutionary Encampment by the Second Connecticut Regiment, Fort Griswold Historic Park, Groton. Starting after Groton's Fourth of July parade, until sunset, the Second Connecticut Regiment will offer a day of military drills and demonstrations of Revolu-



tionary War camp life. No charge. Information: 445-1729; 889-6275.

July 8: Fireworks Extravaganza, Fort Griswold Historic Park, Groton. 6 p.m.-9 p.m., band and musical entertainment; the biggest fireworks display in New England, by Grucci, begins at 9:00 p.m. The finale of the 11th Annual Groton Week festivities. Information: 536-2669; 445-1729. **Rain date: July 9.**

July 15: Summer Music: All Beethoven Program with Pianist Misha Dichter, Harkness Memorial State Park, Waterford. 8 p.m. With the Harkness Festival Orchestra, Peter Sacco conducting.

* Advance ticket sales: Summer Music, Inc., 300 Captain's Walk, Suite 503, New London, CT 06320. Tent seating (advance or at gate, if available), \$15-18. Individual lawn seats (bring your chair or blanket), advance, \$10; at gate, \$12. Series subscriptions and family packages also available. Information: 442-9199. Grounds open at 6 p.m. for picnics with pre-concert music.

July 15: Family Outdoor Discovery Program: Wild Edibles, Goodwin State Forest Conservation Center, Hampton. 10 a.m. Join Barbara Clark on a search for wild edibles — and sample some. No registra-

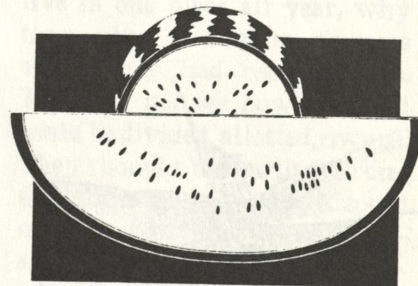
tion necessary. Goodwin State Forest is on Route 6 three miles east of South Chaplin. Information: 566-8108.

July 16: Mansfield Sprints Canoe Races, Mansfield Hollow State Park, Mansfield. 10 a.m. sprint races start; 1:30 p.m. distance races start. Registration, 8:30-9:30 a.m. Junior paddlers, \$5 for full day of racing; senior paddlers, \$10. Sponsored by Connecticut Canoe Racing Association. Information: Sue Audette, 41. Pine Woods Lane, Mansfield Center, CT 06250. (456-0558).

July 20: Summer Music: Family Concert with the Hudson Vagabond Puppet Theater, Harkness Memorial State Park, Waterford. 7 p.m. With the Harkness Festival Orchestra, Peter Sacco conducting.

July 22: Summer Music: Baroque Program with Cellist Sharon Robinson, Harkness Memorial State Park, Waterford. 8 p.m. With the Harkness Festival Orchestra, Peter Sacco conducting. Tickets, see above (July 15); information 442-9199.

July 25-28: Discovering Dinosaurs. Four-day Workshop at Dinosaur State Park, Rocky Hill. A four-day workshop where children who have completed grades 3-5 can explore new ideas about the anatomy of reptiles and amphibians, dinosaur behavior, evolutionary time lines, primitive insect and plant forms. Limited to 15; 9 a.m. to noon; pre-register (\$25; \$20 for Friends of Dinosaur Park



members); 529-8423.

July 26: Peter, Paul, and Mary at a Summer Music Special Event, Harkness Memorial State Park,

Waterford. 8 p.m. Advance ticket sales: Summer Music Inc., 300 Captain's Walk, Suite 503, New London, CT 06320. Tent seating (advance or at gate, if available), \$20-25. Individual lawn seats (bring your chair or blanket), advance, \$14; at gate, \$17. Family packages available. Information: 442-9199. Grounds open at 6 p.m. for picnics with pre-concert music.

July 29: Summer Music: All Tchaikovsky Program with Violinist Leonidas Kavakos, Harkness Memorial State Park, Waterford. 8 p.m. With the Harkness Festival Orchestra, Peter Sacco conducting. Tickets, see above (July 15); information 442-9199.

July 29: Fifteenth Annual Connecticut River Raft Race — Hurd State Park (East Hampton) to Haddam Meadows State Park (Haddam). 10:30 a.m. to 6:30 p.m. 15th Annual Connecticut River Raft Race, the largest, oldest self-supporting raft race in America, sponsored by Connecticut River Raft Race, Inc. About 100 rafts, over 3,000 participants expected. Music, ceremonies, refreshments available at race finish at Haddam Meadows State Park, Route 154. Information: Eric Madocks, chairman, 458-6025.

August 3: Summer Music: Family Concert with the Hudson Vagabond Puppet Theater, Harkness Memorial State Park, Waterford. 7 p.m. With the Harkness Festival Orchestra, Peter Sacco conducting. Tickets, see above (July 20); information

442-9199.

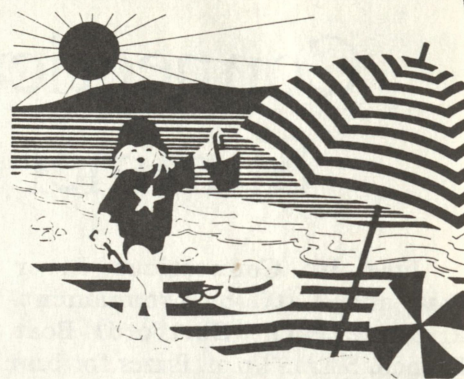
August 5: Summer Music: All Mozart Program with Soprano Dawn Upshaw, Harkness Memorial State Park, Waterford. 8 p.m. With the Harkness Festival Orchestra, Peter Sacco conducting. Tickets, see above (July 15); information 442-9199.

August 5: Family Outdoor Discovery Program: Shoreline Birdwalk, Milford Point. 10 a.m. Discover the birds of the Connecticut shoreline with ornithologist Milan Bull from the Connecticut Audubon Society. Comfortable shoes, binoculars, and field guides recommended. Take exit 34 from I-95. Go left onto Route 1, right at the first stop light, right at the next spotlight onto Milford Point Road. Continue for two miles; road bears right, then left. At next stop sign, go right onto Seaview Avenue, then 0.3 miles to sanctuary parking lot. Information: 566-8108.

August 12: Summer Music: Empire Brass Quintet, Harkness Memorial State Park, Waterford. 8 p.m. With the Harkness Festival Orchestra, Peter Sacco conducting. Tickets, see above (July 15); information 442-9199.

August 12: Family Outdoor Discovery Program: The Geology of Long Island Sound, Avery Point, Groton. 10 a.m. How was Long Island Sound and its shoreline formed? Join marine geologist Ralph Lewis at Avery Point where you can see the glacial moraines that form the southern border of Long Island Sound. Discuss Sound dynamics, different shore types, natural history, and varying geology. Bring comfortable shoes, binoculars. No registration necessary. Information: 566-8108.

August 18, 19, and 20: Quinehtukqut Rendezvous and Native American Festival, Haddam Meadows State Park, Haddam. Friday, noon-7 p.m.; Saturday and Sunday, 9 a.m.-6 p.m. A weekend that combines a black powder muster and demonstrations of 17th through 19th century American life. "Mountain Men"

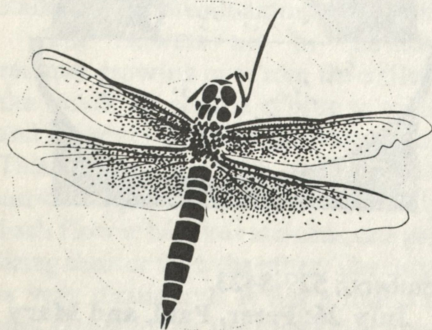


recreating lives of earlier generations. Indians in tribal regalia in drumming, competition dancing, storytelling, and song. Authentic pre-Civil War and Native American arts and crafts and foods. Sponsored by the Spirit of Quinehtukqut, Inc. Admission: \$4, adults; \$2, kids 6-12 and seniors over 60. Information: 282-1404.

August 19: Summer Music: Summer Pops at Harkness, Harkness Memorial State Park, Waterford. 8 p.m. The Harkness Festival Orchestra, Peter Sacco conducting, in the final concert of the Summer Music series. Tickets, see above (July 15); information 442-9199.

September 1, 2, and 3: Weekend Encampment Sponsored by the Second Connecticut Regiment — in honor of the 208th anniversary of the Battle of Groton Heights, Fort Griswold Historic Park, Groton. 10 a.m. to 6 p.m. Saturday; 10 a.m. to 5 p.m. Sunday. The Second Connecticut Regiment will host a dozen or more regiments in demonstrations of Revolutionary War camp life. Battle reenactments Saturday and Sunday. No charge. Information: 889-6275; 445-1729.

September 2: Family Outdoor Discovery Program: Oystering Demonstration and Salt Marsh Walk, Guilford Boat Launch Area, Guilford. 10 a.m. Join Tim Visel of the Marine Advisory Service for a small oyster boat demonstration. Learn more about oyster beds, harvesting, and production of these shellfish. Then take a salt marsh walk with



environmental educator Alberto Mimo. Comfortable shoes. No registration necessary. Go south from US 1 on Neck Road approximately one and a half miles. Boat launch area is on east bank of East River, three miles southwest of Madison.

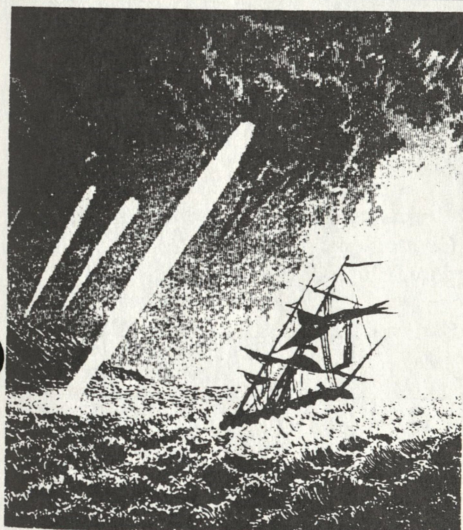
September 10: Mansfield Hollow Marathon Flatwater Canoe Championship, Mansfield Hollow State Park Boat Launch, Mans-

field. Registration, 8:30 - 10:25 a.m. Race meeting at 10:30 a.m. Sponsored by Connecticut Canoe Racing Association. Largest canoe race in Connecticut. Five mile course for novices and local recreational canoeists; seven plus mile Olympic kayak and canoe course. Afternoon war canoe challenge. Also fun events. Registration, \$6 per paddler. Contact Sue Audette, 41 Pine Woods Lane, Mansfield Center, CT 06250

(203-456-0558) for information.

September 16: Family Outdoor Discovery Program: Rocky Neck State Park, Niantic. Spend a week-end learning about the cultural and natural history of Long Island Sound with researchers and environmental educators from around Connecticut. Variety of workshops, all meals and camping facilities provided. For registration materials, call 566-8108. ■

The Night Sky



Getting Famous

by
Francine Jackson

A FAIRLY "EASY" WAY to become famous is to discover a comet. Because, on average, about 10 new comets are believed to enter our neighborhood each year, the chance of your finding one is pretty good. All you have to do is go outside every clear night, with or without a telescope (preferably with), and scan the sky, looking for a fuzzy blob that, over the course of time, moves. Your reward for this? If you are one of the first to report the new comet, and if it indeed is new — not one returning on its periodic path around the sun — then the comet becomes

"yours": it is referred to by your name. If it is found to be periodic, that is, has an orbit around the sun of fewer than 200 years, it is called by your name at every Earthly visitation.

Through the centuries, this potential for fame has spurred many to look up, and quite a few have been rewarded. For instance, an amateur astronomer in Australia has — as of this writing — discovered 14; a husband-and-wife research team in the U.S. can claim 16, although some of theirs have been found photographically.

Such was the desire of Charles Messier, an 18th century astronomer born June 26, 1730. In all, he discovered at least 15 comets, although some say the number could have been as high as 21. However, Messier is less known for his comet prowess as he is for the way in which he eliminated potential cometary candidates.

As mentioned earlier, one way to determine if an object is a comet is to check for motion over a period of time. Messier became so frustrated looking at fuzzy objects and then realizing they belonged there (that is, were stationary), that he decided to catalog them — note their positions in the sky. That way, if he encountered a promising-looking object, he would check it against his notes. If it weren't part of his list, but didn't move, he'd add it on. If it did move, he'd announce its discovery. All in all, he listed 68 entries in his "Messier catalog." As time has passed, the list has increased to 110, where it will probably remain.

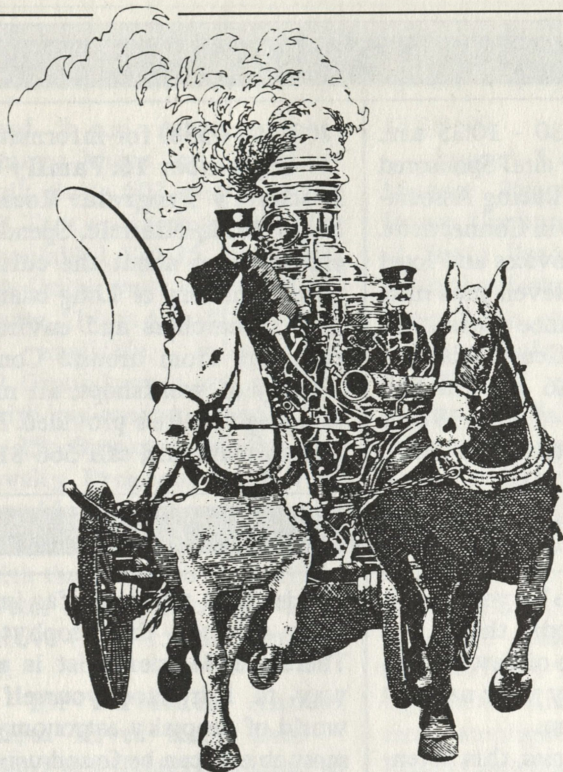
The benefit of this catalog is that

Messier used telescopes far inferior to those of even the neophyte today. Therefore, Messier's list is a perfect way to introduce yourself to the world of deep sky astronomy. If fact most objects can be found using binoculars (a couple are even naked-eye objects). Most astronomy books will list the Messier objects for you. Or, try *The Messier Album* by Mallas and Kreimer. For, after all, in addition to discovering the beauty of the night sky, this could be your chance at fame. ■

Endnote

The Indians felt grief and bewilderment. They could not understand why the soldiers pursued them when all they ever wanted was to be left alone so that they might live as they had lived for centuries: hunting, fishing, trailing the munificent buffalo. They failed to see why they should live in one place all year, why they should become farmers when they had been hunters. They did not see how the land could be divided, allotted, owned. They thought the earth was created for everybody, that it could not be appropriated by individuals or groups, and to destroy vegetation by plowing was to contradict the obvious plan of a supreme deity.

Evan S. Connell



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